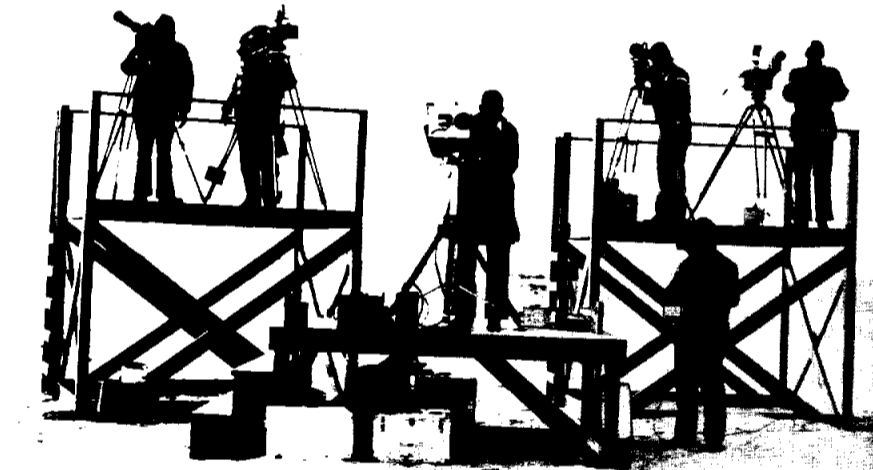
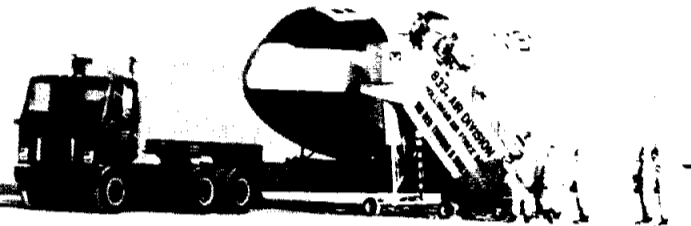


Space News Roundup

Orbiter may land at Northrup Strip

Procedures for landing at Northrup Strip were tested last month at the JSC facility in New Mexico. In case of rain—which has been unseasonably high this year in California—the orbiter will land at Northrup instead of Edwards Air Force Base. Photos from the landing exercise are featured here: clockwise from the top: T-38 simulates orbiter landing; astronaut egress exercise; orbiter landing simulated with a T-38 TV chase plane; Photo Technology Division employees at work; convoy waits to go into action after landing; and simulated response to the orbiter's "hot brakes."



Orbiter retests continue as launch grows near

Post flight readiness firing reverification of the shuttle's main propulsion system was nearly complete at *Space News Roundup* press time.

According to preliminary data, the engines performed to specifications during the 20-second firing Feb. 20. They were throttled during the test from 100% to 94% of their rated thrust and tilted in their gimbals as they would be in flight.

Test directors at the Cape noted particularly the performance of the Ground Launch Sequencer, a computer program which controls launch events from T-9:00 until T-00:25. The GLS performs nearly 1000 checks and operations during the minutes leading up to launch.

Two problems remained in the post FRF reverification: one, the rewelding of two pinhole leaks in the nozzles of Engines 1 and 3, and the other dealing with the oxygen control valve on Engine 1.

Post test data review showed that the valve was not completely open during the firing. This did not cause a problem with the engine firing, but it is not a condition which is acceptable for flight.

Engineers were to inspect the valve, and once that troubleshooting was complete, there would be approximately 16 more hours work to be done to complete the reverification of the shuttle's main engines.

The next major test after the flight readiness firing is the Shuttle Systems Test, which retests many of the systems on the orbiter, external tank, and solid rocket boosters. That test began Saturday

the 21st with the retesting of the orbiter onboard computers.

During the first tanking test with the ET a few weeks ago, 17 panels of insulation material came debonded. Because of the insulation's location on the orbiter, an access structure was built, and repair work began last weekend.

The panels were to be shipped back to the manufacturer where work would be done to determine the cause of the de-

bonding. At the same time at the Cape, technicians were to examine the area under ultraviolet light, take samples for analysis, and perform pull tests.

Preliminary analysis of the problem shows the debonding was not caused by an error in design.

Once the material was removed, it was expected to be a matter of days before the cause of the problem was found.

Engineers have reported the "twang"

measured during the firing. The tip of the ET moved 30 inches in one direction and 10 inches in the other. Umbilicals connected to the shuttle moved with the vehicle, and did not move out of guidelines. So the "twang" does not appear to be a problem.

Post FRF inspections of the orbiter's tiles revealed a loss of three gap fillers and some debonded felt reusable surface

See *ORBITER STATUS*, Page 4

Handicap workshop set next week

A search is underway nationwide to find ways computers can be used to assist the handicapped. JSC will sponsor a workshop on the topic "Computers and the Handicapped" on March 25 at Gilruth Center and the Bldg. 2 auditorium. The year 1981 is the International Year of Disabled Persons, and the workshop is being conducted to assist Johns Hopkins University in its national search. For further information, contact Shirley Price, handicapped coordinator in the Equal Employment Office at x4831.

President Reagan's revised budget proposal was released as *Space News Roundup* went to press. Details will be published in the next edition.

Lunar Planetary Conference to go from dinosaurs to Mars

The 12th annual Lunar and Planetary Science Conference will be held at Johnson Space Center March 15-20.

A public forum on the Voyager encounter at Saturn and a workshop on the use of non-terrestrial resources highlight this year's conference. The Saturn forum will be in the Bldg. 2 auditorium at 8 p.m. Tuesday the 17th, and the workshop will be Wednesday at 1 p.m. in the Gilruth Center on site at JSC.

Topics to be covered in the 23 sessions include:

- *Origin of the solar system
- *Satellites of Jupiter
- *Meteorite chronology
- *Lunar remote sensing
- *Planetary physics
- *Mars—geologic evolution, and
- *Venus.

The science sessions and exhibits, unless otherwise indicated, will be lo-

cated in the Gilruth Center.

Coinciding with the conference, "The Case for Man on Mars by 1999" will be the topic of the monthly JSC Astronomers Brown Bag Luncheon at noon Wednesday in the Bldg. 31 conference room.

Monday night at 8 p.m. representatives from the European Space Agency, the Japanese Space Agency, and NASA Headquarters will conduct a session on the future of space exploration.

Scientists from around the world have been meeting annually at Johnson Space Center since the first samples of soil and rock were returned from the Moon 12 years ago. Five years ago, the conference topic was extended to cover all planetary bodies in the solar system.

NASA's Johnson Space Center and the University Space Research Association's Lunar and Planetary Institute co-sponsor the conference each year.

Bulletin Board

Scientists and Engineers Needed as News Sources

As the world becomes more dependent on science and technology, hardly a day goes by without a front-page story that involves science. The Scientists' Institute for Public Information provides a service for journalists around the country to help them get the facts straight. For example, if a story breaks about nuclear energy, pharmaceuticals, or aerospace, and the reporter needs background technical information, he or she calls the SIPI number in New York. A staff member then refers the reporter to an expert on the topic. SIPI needs aeronautics specialists who will be available to answer questions in the interest of accurate news reporting. If you want to be a news source, contact Alan McGowan at 212/661-9110 or Kay Ebeling in the JSC Newsroom, x5111.

Is It Really Healthy to Jog in the Smog?

Adult amateur joggers are needed to participate in a study investigating the health effects of air pollution. The study is being conducted by the University of Texas School of Public Health in collaboration with the Environmental Protection Agency. Joggers should be between 30 and 40 years of age, male or female, and currently should be running between three and four miles a day,

three or four times a week. Joggers should be available to run on weekdays around 5 p.m. at Clear Lake High School during the period of May through October of this year. There will also be a pilot test for three weeks in April. For further information, call Mandy Cham, UT School of Public Health, at 792-4644.

Space Shuttle Souvenirs on Sale at the JSC Exchange Store

Attention, all you space shuttle souvenir collectors. The JSC Exchange Store is now taking orders for a space shuttle radio which is inside a replica of the orbiter Enterprise. The cost is \$25, and orders can be placed in the Bldg. 11 Exchange Store. A sample of this radio will be on display in the store from 10 a.m. to 2 p.m. Plus There's More at the Exchange Store (Store hours 10 a.m. to 2 p.m.) Plitt Theatre tickets: \$2.10 General Cinema tickets: \$2.40 Postage stamps: \$3 Entertainment '81 coupon book: \$16 Gold C Values Book '80-81: \$5

Learn About the Future of Data Processing at Next AIAA Meeting

Robert O. Evans will be the guest speaker at the next Ameri-

can Institute of Aeronautics and Astronautics meeting Tuesday March 24. Evans joined IBM in 1951 as a junior engineer, and today he is vice-president in charge of world-wide engineering, programming, and technology. "Future Technologies in Data Processing" is the topic of his speech. The program, free to the public, begins at 8 p.m. Dinner -- \$6 for members, \$7 for non-members--will be at 7, preceded by a social hour which begins at 6. Reservations for dinner can be made by calling Sandra at 483-3995 by March 20 at noon.

JSC Golf Association Announces Its Schedule

The JSC Golf Association has set its schedule for 1981. The warm-up fun tournament was held at El Dorado on Feb. 12. The first competitive tournament will be at Wortham Park on March 21. Then it's Texas City Bayou (April 4), Newport (May 9), Chigger Creek (June 6), Goose Creek (June 27), Woodlands - fun (July 18), Brock Park (Aug. 8), Lake Houston (Sept. 19), and Atascocita (Oct. 12). The Championship tournament for qualifiers will be at Goose Creek (Oct. 24 and 25) and the wrap-up fun event will be at Sharpstown (Nov. 11). Any golfers interested in competitive play may call Steve Gorman at x4891 for more information.

What to do in hi-rise fire

(The recent spate of hotel fires has probably caused concern among space program employees who have to travel. Richard Holzapfel of the Safety Division submitted this article from Boeing News for reprint in Space News Roundup. The information was compiled by the Los Angeles County Fire Department and the National Safety Council.)

Where is the door in relation to the bed?

Check the windows. How do they open, if they do? Do they lead to a balcony? How high up are you? Don't consider jumping from higher than the first or second floors. And consider any sills or ledges you might have to clear on the way down.

If there's a fire

If it's in your room, report it immediately and then try to put it out only if you can handle it. If there's any doubt about dowsing it, grab your key, get out, close the door behind you, sound the alarm, and arouse your neighbors.

If it's in another part of the building and you are aroused by an alarm, shouting, or sirens, you may or may not be able to leave your room, depending on conditions. To find out, grab your key and roll out of bed and on to the floor; crawl to the door if there is any evidence of smoke. Feel the door or knob with the palm of your hand. If it's hot, don't open it. (Procedures to follow for remaining inside your room will be detailed later.)

Leaving the room

If the door is cool, open it slowly from a kneeling position and be ready to slam it shut if necessary.

Check the hall. (Before you leave, be sure you have your key, as you may have to make a hasty retreat to your room. Even if you don't, the closed door will help protect your possessions.) If everything is clear, close the door behind you. Walk to the nearest unblocked exit. If there is smoke, crawl. Do not use the elevator.

Walk down to ground level holding the handrail or up to the roof if fire and/or smoke are dense at lower levels. Prop the roof door open, both to vent the stairway and to keep from being locked out. Stay on the windward side of the building and wait for help.

Staying in your room

If the door is hot or smoke is dense in the hall, don't panic.

Open the window to vent the room. Don't break the glass if you don't need to: you may need to close the window if smoke starts coming in, and broken glass is treacherous.

If the telephone works, let someone know of your situation. Hang a bedsheets out the window to let firefighters know you are there, but don't climb down it.

Turn on the bathroom vent. Fill the bathtub with cool water. Wet sheets or towels in the tub and stuff the cracks of your door to keep smoke out.

Use your hotel ice bucket to bail water from the tub onto the door and walls to keep them cool.

Tie a wet towel folded in a triangle around your nose and mouth, putting the corner in your mouth to filter out smoke.

Swing a wet towel around the room to help clear the smoke.

If there is fire outside the window, pull down the drapes and move everything combustible away from the windows.

Keep as calm as possible and wait for help.

Roundup deadline is the first Wednesday after publication.

Cookin'

**Menu subject to change without notice.

Week of March 16 - 20

Monday: Chicken Noodle Soup; Round Steak w/Hash Browns; Weiners & Beans; Meatballs & Spaghetti (Special); Okra & Tomatoes, Carrots, Whipped Potatoes. Standard Daily Items: Roast Beef; Baked Ham, Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Beef & Barley Soup; Beef Stew; Shrimp Creole; Fried Chicken (Special); Stewed Tomatoes, Mixed Vegetables, Broccoli.

Wednesday: Seafood Gumbo; Fried Perch; New England Dinner; Swiss Steak (Special) Italian Green Beans, Cabbage, Carrots.

Thursday: Cream of Chicken Soup; Turkey & Dressing; Enchiladas w/Chili; Weiners & Macaroni; Stuffed Bell Pepper (Special) Zucchini Squash, English Peas, Rice.

Friday: Seafood Gumbo; Baked Flounder; 1/4 Broiled Chicken w/Peach Half; Salisbury Steak (Special); Cauliflower au Gratin, Mixed Vegetables, Whipped Potatoes, Buttered Cabbage.

Week of March 23 - 27

Monday: Chicken & Rice Soup; Texas Hots & Beans; BBQ Ham Steak; Steak Parmesan; Beef & Macaroni (Special); Green Beans, Carrots, Au Gratin Potatoes. Standard Daily Items: Roast Beef; Baked Ham; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Tomato Soup; Potato Baked Chicken; BBQ Spare Ribs; Mexican Dinner (Special); Squash, Ranch Beans, Spanish Rice, Broccoli.

Wednesday: Seafood Gumbo; Baked Turbot; Liver & Onions; BBQ Ham Steak; Baked Meatloaf w/Creole Sauce (Special); Beets, Brussels Sprouts, Green Beans, Whipped Potatoes.

Thursday: Beef & Barley Soup; Chicken & Dumplings; Corned Beef w/Cabbage; Smothered Steak w/Cornbread Dressing (Special); Spinach, Cabbage, Cauliflower au Gratin, Parsley Potatoes.

Friday: Seafood Gumbo; Pork Chop w/Yam Rosette; Creole Baked Cod; Tuna & Salmon Croquette (Special); Brussels Sprouts, Green Beans, Buttered Corn, Whipped Potatoes.



35 years: Henry E. Clements, Clayton D. Forbes, Benjaming J. Cockerhan, Reginald M. Machell, Robert F. Thompson, Howard C. Kyle.

30 years: Albert H. Crews, Jr., Joe J. Guerrero, Salvador Villarreal, Cornelius J. Sullivan, George H. Gurganious, George W. S. Abbey, Joy K. Whittemore, Richard A. Wright, Donald Alcorns, Joe M. Pirtle, Norma J. Ford.

At Gilruth Rec Center

Saturday at the Movies -

Tickets are now on sale at the Bldg. 11 Exchange store for the next Saturday movie at the Gilruth Recreation Center. The feature presentation will be the Disney classic "Bed Knobs and Broomsticks." The program also includes popcorn, coke, and cartoons. Showtime is 10 a.m. on March 28.

Teen Dance -

An exciting new program for NASA youth - a Teen Dance will be held on March 28 from 7-11 p.m.. Entertainment will be provided by a DJ from K-Disc. Cost is \$2 per person, which includes cokes and snacks. Bring your friends and enjoy yourself at the Gilruth Recreation Center.

Over 35 Basketball League -

If you are interested in playing in a men's over 35 basketball league, call x3594 and let us know. Tentative plans call for a Sunday afternoon league.

Nostalgia Dance - Rummage through your old suitcases and dig out the old clothes you've been saving for our 50's & 60's Nostalgia Dance. The dance will be held on April 4 at the Gilruth Recreation Center. Music will be provided by Joey Long and his band. Music during dinner and band breaks will be by Travlyn Disco. Features of the night will be a costume contest, dance contest, and hula hoop contest with prizes for the winners. Cost is \$10 per ticket and includes a roast beef dinner, beverages, and entertainment. Tickets are now on sale at the Bldg. 11 Exchange Store.

Registration is being accepted in the following leisure time classes:

Basic Auto Mechanics - Learn to perform minor repairs and preventative maintenance on your

car and save money at the same time. The course is strictly for beginners and meets on three consecutive Thursdays beginning March 26 from 7:30-9:30 and one Saturday, April 4. Cost is \$16.75 per person.

Aerobic Dance - Part dance, part exercise, all fun is the name of the game in this class. The class meets on Tuesday and Thursday evenings from 7-8 p.m. for six weeks, beginning March 24. The cost is \$24 per person.

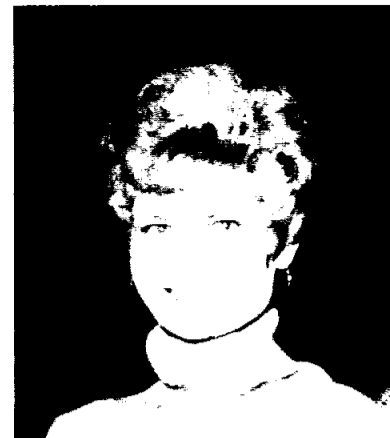
St. Patrick's Day 1st Annual 1/4 Marathon - Sign up now for the 1/4 Marathon to be held at 8 a.m. on March 21 at the Gilruth Recreation Center. The cost is \$5 per person with T-Shirts to the first 300 registrants and medals to the first three finishers in each category. Call x3594 for an entry blank.

This secretary shines

The phone rings. Frances Smith takes her hands from the typewriter keys and answers. After listening for a minute, she weighs the issue, then channels the call to the right person on the staff. Back to the typewriter keys.

She is transcribing shorthand notes from the dictation session she had with her boss, the Director of Administration and Program Support, earlier that morning. When she is finished with these letters, she will check the suspense file for action items coming up. Then there are more letters, these she will compose herself. The phone rings again, and Smith answers, unruffled by the hectic pace.

Frances Smith was named Outstanding Secretary for January 1981. She shows initiative, assumes responsibility, and possesses outstanding secretarial skills -- abilities which allow her supervisor to "fulfill his role in a more effective manner," reads the



Frances Smith
Outstanding Secretary
award nomination.

Judgment and diplomacy are a major part of her job. In that office, Smith has to deal with an unusually large number of phone calls, many dealing with sensitive matters such as procurement, personnel actions, and proposed reorganizations. She handles inquiries and provides information with a great deal of skill.

Ads must be under 20 words total per person, double spaced, and typed or printed. Deadline for submitting or cancelling ads is 5 p.m. the first Wednesday after publication. Send ads to AP3 Roundup, or deliver them to the Newsroom, Building 2 annex. No phone-in ads will be taken. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads.

Roundup Swap Shop

Household Articles

Sleep-n-Aire Firm-O-Pedic mattress and box springs-full, 6 mo old \$100. Call Jane Lehman x3954

4 Piece lr set 2 tables, 2 couches \$325 x4065 470-0279

Freezer, upright, 15 cu. ft. Sears. Good condition but could stand a new door seal. \$100. 474-2906 after 6 and weekends.

O'Keefe & Merritt built-in double oven, bronze, cut-out Dims: h-39', w-22', D-24'. \$20 488-5967

Brown Stafford sofa, good condition, \$75 call 474-4588 after 6 pm

19" B&W TV, works good - \$65 Maple frame for Double bed \$30 Janet x2004 or 480-3048

New sewing machine, won in contest, never used, must sell, real bargain. 482-6103

Piano, Kimball Spinet, perfect cond. call after 5 554-2690

Solid pine hand carved spanish door 32x78 \$75 Twin head board, 58 inch high, spanish style hand carved solid pine with tapered spindles. \$50 New in box, water pik water filter \$14 John 488-0559 or x4393

Two base cabinets with 5 ft. counter top \$85 x3616 or 481-1191

For sale: SHARP 19" portable color T.V., excellent cond., \$125, Larsen x5049

Heathkit GR-295 23" color set, maple cabinet, works well, extra tubes. \$225. 944-7042

For sale: sofa, 80", 3-cushion, Early American. Excellent condition. \$149. 946-1869

Lost & Found

Found: Two rings in Building 1 parking lot. Owner can claim by identifying. Elaine, x6291.

Musical Instruments

Bundy Trumpet & Case \$100. 20" girls bike like new \$35

Roundup deadline is the first Wednesday after publication.

Cars / Trucks

Free, Chrysler 383 engine (1966), was in good condition when last ran. Must take the rest of car. 474-2906 after 6 or on weekends

1980 Terry 22' lightweight travel trailer, weighs only 1850 pounds, air awning, TV, antenna, self-contained, excellent condition \$5900. Ferguson x3188 or 483-2386

'77 4x4, 3 tanks, hitch. \$2500. Firm x4065 470-0279

Many parts for '75 Monte Carlo. Bumpers, engine, radiator, trunk lid, fenders, many internal, AC to chassis parts. All good, reasonable prices. 487-1476 after 5 pm

For sale: 1979 Olds Cutlass Supreme excellent condition ps/pb/ac/am-fm stereo/Landau top, etc. Small v-8 gets good gas mileage. \$5500 486-1674 after 5pm

'75 VW Rabbit, am-fm-stereo, air, 4 speed, Michelins clean. '72 Toyota Mark 11. Parts, Nelson x3427 538-1313

1980 Chevy Citation, 4cyl, 4 spd. manual, excellent gas mileage \$5700 must sell, Frank x7204 or 332-7383

Sharp 1977 Chev. Chevette hatch-back. Jim x4947 or 480-2927

Chevy-1979 Chevette - 17,000mi a/c fm, 4-speed, 30 mpg, excellent condition, 4-door, silver 4150 or best offer 946-1750

'75 Ford Elite, air, AM-FM-Cassette, new vinyl top, excl. condition, 59,000 miles-one owner, \$1975, Alma x3152 or 481-3426

INSPECTOR GENERAL HOTLINE

- FRAUD
- WASTE
- ABUSE
- MISMANAGEMENT

AT JOHNSON SPACE CENTER CALL: 483-4773
 OR TOLL FREE: (800) 424-9183
 24 HOUR ANSWERING SERVICE

CALLER CAN BE ANONYMOUS

OR WRITE: NASA INSPECTOR GENERAL
 P O BOX 23089
 L'ENFANT PLAZA STATION
 WASHINGTON, D.C. 20024

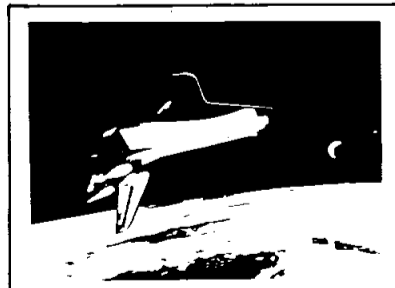
Chevy-78 Caprice, exc. cond. am/fm radio, pb, ps, cruise, a/c split reclining velour seat. Priced to sell imm. Bought new. 3995 332-2991

'76 Trans AM with '78 front end, black, new SS Radial 60's 350 4-speed; uses regular gas tilt wheel, electric windows & locks \$3000.00 Irma, x2307.

'77 Dodge Santana van camper 30 gal tank, seldom used, all utilities except shower, raised roof, must be seen to be appreciated. C.Bowser x5557

'73 Volkswagon "thing", basket case body, no top, rebuilt 1600 engine, runs good. \$500. Max x5127 or 471-4209 after 5

For Sale: 74 Buick Apollo, automatic transmission, power steering, am/fm vinyltop and Buick Mag Wheels. Ray 649-7420 after 5.



The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for all space center employees.

Editor: Kay Ebeling

1977 Dodge Monaco Brougham, 4dr 318V8, AC, PS, AM/FM, vinyl roof, 52k miles, \$2200, McBride 337-4643 after 5.

Tires Penney's h78-15, 4-ply bias; Michelin 205-15 steel belted radial, good tread \$15 each. McBride 337-4643 after 5pm

65 Ford Fairland 500 sport coupe, A/C, 289 V-8, good lines, restorable; make an offer McBride 337-4643 after 5 pm

74 Buick Apollo, Automatic Transmission Power Steering, A/M F/M vinyl top and Buick Mag wheels. Ray 649-7420 after 5.

1979 K-5 Blazer, Cheyenne Package, PS/PB, A/C, new tires, 26,000 miles 4-wheel drive, clean \$6500. 481-9254 after 6.

1963 Chevy, runs good \$275, John x5437, 488-2276.

Several good condition 1975 Monte Carlo parts. Bumpers, front fenders 350 engine radiator, chassis & internal items. Ed Whitacre 487-1476 after 5

For sale: 1978 GMC motorhome. Royale model - rear bath 20,000 miles. Excellent condition x2653 334-1773

Miscellaneous

Sears 2 ton a/c, \$120. Mexican Sombra, \$3. Oval rug, \$5. Miner's hardhat and lamp, \$10 482-8827

Remington 870 12 ga. pump. Plain bbl. w/case x150 488-3966

Spartan sun lamp, delux mdl., timer & auto. shut off. Asmbld w/stand. x6470/488-5083

Wards 2-way exercise bike. Rower/cycler. Trims tummy, waist, legs. Fully asmbld. x6470/488-5083

1000 3 cent mint U.S. commemorative stamps, (50 ea. of issues), \$35. Excellent for collectors or for postage. Jeff x7429 or 482-5393

Baby Bassinet w/skirt \$10, baby bath tub \$2. Assorted baby items. x3976 or 479-7437 Carol.

Four General tires HR 78x15 steel belted, wsw, \$80. x3616 or 481-1191

Coleman Deluxe Catalytic Heater, 6qt. capacity. 5,000 to 8,000 BTU's Used once. \$35. Germany, 3338 or 643-4456 after 6.

Azaleas & Crepe Myrtles, (Reds, Pinks, & Whites) one and five gallon cont. size call Ray, x5250

Wanted

Used aviators flight computer and plotter. Call x4436 and ask for Mark

Camera system, Datson z40 zr stereo cartridge reasonable x4065 470-0279

Dirt Bike, 4-cycle, 100 to 200 cc., will pay \$500 if in good condition Blucker x3533

Tripod for Minolta camera. 474-2384

Property & Rentals

Rent: League City, Pecan Forest, 3-13/4-2, fireplace spacious master bedroom, private yard, near pool. \$495/mo, call 554-6200

For Lease: CLC/Oakbrook west, 4-2-2, 2200 Sq. Ft. Beautiful home. 488-6796 after 5 pm

Lease: 2-2 fireplace, ceiling fan, new carpet, fridg, washer/dryer convenient to NASA, no pets \$450 486-1370.

For Rent: Dickinson Bayou Condominium. 2 bedroom, den, 2-1/2 baths, utility room, 2-car Garage, tennis court, pool, boat ramp-\$550/mo phone 337-1027

Heritage Park: 3-2-2, 3 mo new, fireplace, fenced refrigerator, large kitchen & dining \$525 plus dep. 482-6609 after 5

Baywind Condo. 1-1-1 tenant occupied, excellent for investors upstairs. \$28,900 474-3839

Galveston-by-the-Sea Condominium. Two bedroom furnished apartment for rent by day, week, or month. Clements 474-2622

One bedroom townhome for sale. 16410 Diana Lane in King's Village 488-0577

Pets

Cockers: females, 7 wks. AKC champagne, \$145 Chaput x2991 nites 486-5300

Welsh ponies for sale. 1 stud, 1 mare both kid broke. \$120 each or both for \$200 Whitmore, x7241

AKC black male Toy Poodle. 4yr old shots \$75 944-7042

Cycles

'72 Honda CB-750 K, Excellent cond., new paint, rebuilt engine, custom pipes, etc. \$1,600 negotiable. Kevin x2896 or 480-5322

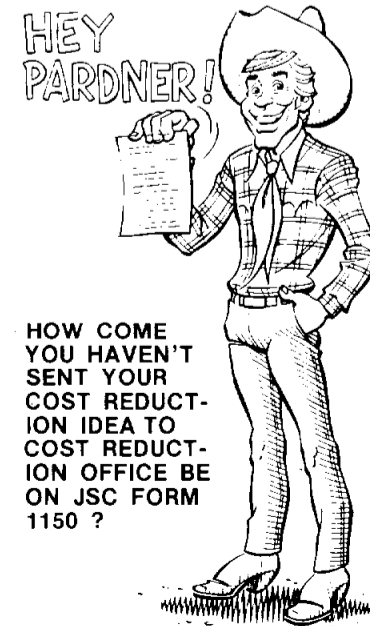
1980 Honda CM400T-2,800 mi. excellent cond., \$1,700 must sell Frank x7204 or 332-7383

Suzuki RM80, 1977 air shocks and ready to go \$375. Sears 5hp Go-Cart, almost new \$300 T. White 474-2214 after 5 pm.

1975 Kawasaki 900, good condition, 9000 actual miles. \$1400. Rosie x4551 or 585-6455 after 6 pm.

'75 Honda XR-75, helmet, manual & car carrier \$350 474-3507

Vespa "Ciao Special" moped, excellent condition, 1 yr. old \$400 Murtagh x3217



HOW COME YOU HAVEN'T SENT YOUR COST REDUCTION IDEA TO COST REDUCTION OFFICE BE ON JSC FORM 1150 ?

Cartoon by Russ Byther

Stereos & Cameras

Zeiss-Ikon Contaflex Camera lens. 115mm f4 & 35mm f3.2 (Telephoto & Wide angle) both for \$60 488-5967

For sale: Panasonic Stereo receiver, turntable, 8-track, and speakers \$225.00 Call Irma x2307.

For Sale: Fujica 35 Auto M camera w/flash \$65 474-3507

For Sale: Lloyd's turn table plus two speakers, \$40 Murtagh x3217

Does Astroworld become Gastroworld to you? Disneyland seem more like Dizzyland? If you have problems with motion sickness and would like to try and overcome them, call the Neurophysiology Laboratory at JSC, x5056, and ask for Carol Lacey. The lab is looking for volunteers for the space motion sickness project, especially persons who tend to have the problem.

Boats / Planes

1977 20hp Mercury o/b motor plus accessories. Manual start. Excellent condition. \$800 Hyams 488-5964

Outboard motor, 1 1/2hp Evinrude Excellent for trolling, canoe or sailboat. Less than 25 hrs total time. \$190 333-3071

Airplane-Cessna-1965, C-150, Feb 82 annual, 900 SMOH, perfect flying condition, parked at Houston Gulf 3971U 4950 or best offer 946-1750

"LIDO" 14 sailboats: new/used - Family sailing/racing. Popular boat/big fleet Excellent investment. 334-2392 or 482-7305

22' Thompson/170 Volvo I/O - for sale or trade for smaller boat; VHF Radiotelephone, depth finder, stereo, more extras. C. Martin, x4981 or 534-4825 after 4:30

Carpools

Need ride Shoreacres to Bldg. 15, return 7:30-4:00 x4065 470-0279

Need to join carpools (or ride) 8-4:30 shift Bellaire area to Bldg 4 Karl x3087

Need additional carpools from Dickinson, 7:45-4:45 shift. Reserved parking at Bldg. 30. Debbie x4481 or 337-1201

Carpool - Galveston to JSC x5457

Anyone interested in forming a carpool from Pearland to NASA please contact: Mark x5871 home 997-1276

Smokers no, riders yes 78 Cadillac, Post Oak/McHard, Alameda-Genoa/Mall to bldg 12 8-4:30 Heetderks x4445

Columbia Liftoff in April—Kickoff in

May: With the liftoff of Columbia in April, the JSC EAA picnic this year will be a Western-Hence Columbia Kickoff in May. The picnic will be at Camp Manison May 2 with the usual good barbecue, trimmings, and entertainment for singles and families. This year's picnic chair is Cyndi Martin and co-chair is Dale Martin. They are backed by a large, enthusiastic committee shown at right. Watch for details in coming Space News Roundups, flyers, and posters.

Orbiter Status

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insulation on the left Orbiter Maneuvering System pod. No tiles fell off, and 95% of the damage was small nicks and chips out of tiles located on the aft end of the orbiter near the engine domes. About 100 repairs will be made, by recoating the tiles with silica.

All the visual and internal inspections of the main engines following FRF have been good and no problems have been reported. Work remaining in the engine area are checks of the total main propulsion system including leak checks, valve timing checks, and comprehensive tests of the mechanical and electrical systems.

Some "gee whiz" information: sensors located on tiles around the engines recorded temperatures as high as 647 degrees F on the body flap and 613 degrees F in the area between all three engines—very cool from a tile standpoint.

**Crew dresses for success in 3-piece suits**

Astronauts John Young and Robert Crippen last week donned their new three-piece shuttle space suits: upper torso, lower torso, and helmet (with visor).

Then, in a vacuum chamber pumped dry of air, they tested, "bought off," and ordered the "three-piecers" delivered to their shuttle orbiter, Columbia, at Cape Kennedy in case they need to take an unscheduled walk in space next month.

The space-walk suits were tested with the space-certified primary life-support systems (backpacks) supplying the oxygen and suit pressure as they would if needed during the first orbital flight named STS-1.

No spacewalk is planned, but if required, it would be performed by Crippen. A spacewalk would be required if Columbia's payload bay doors are jammed by debris or fail to lock shut. A 100-foot tether would connect the suited crewman to the orbiting spacecraft.

In contrast to the Apollo lunar suit, the space shuttle suit costs less because it is not customized for the wearer and is more flexible. It is fitted, much like a suit

at a ready-to-wear store here on Earth, from differently sized parts.

The space shuttle suit is sized to accommodate male or female crewmembers. It includes a hard upper torso with gloves, the lower torso, helmet, and visor.

The lower torso comes in two sizes while the hard upper torso has four, each with matching metal waist rings.

Connecting gloves are available in nine sizes and the helmet single size fits all.

The shuttle suit's hard ring makes it easier to don and doff than the Apollo suit. Metal snap-ring retainers connect each component. There are no zippers which often proved to be a problem in the Apollo suits.

The hard upper torso uses bearings in the shoulder and arm joints, making it easier to move around. The new suit's mobility is exceptional, allowing bending, leaning, and twisting motions with relative ease. No motion requires more than four "foot-pounds."

All softgoods-to-hardware connections have a combination of mechanical joints (sewn, screwed, clamped) and

adhesive bonding.

The suit materials prevent fungus or bacteria growth. The suits may be cleaned and dried after use.

The suit has several bonded layers beginning with polyurethane-on-nylon. Numerous layers of Kevlar are added with folded and tucked joints (for mobility), and ending with Devlar, Teflon, and Dacron anti-abrasion layers. The hard upper torso has an aluminum shell.

The visor assembly, which snaps onto the outside of the helmet, protects against micrometeoroids and the sun's ultraviolet and infrared radiation.

The primary life support system backpack mounts on the hard upper torso. It pressurizes the suit and provides constantly refreshed atmosphere for breathing. It removes metabolically produced heat through a liquid-cooled and vent garment.

The backpack contains the primary oxygen bottles, water tanks, the fan-separator-pump motor, contaminant control cartridges, regulators, valves, and sensors; and a communications bioinstrumentation and microprocessor module.



Deke Slayton

With his election as a Fellow of the American Institute of Aeronautics and Astronautics last month, Deke Slayton has joined persons of distinction to the arts, sciences, and technology of aeronautics and astronautics.

EAA - ASTRO Season games

April 21 - Los Angeles
game time 7:35
May 14 - St. Louis
game time 7:35
June 30 - Cincinnati
game time 7:35
July 23 - Pittsburg
game time 7:35
Aug. 28 - Philadelphia
game time 7:35
Sept. 26, Los Angeles
game time 1:20

Manned Flight Awareness**Transducer Anomaly**

During the flight readiness firing and the tank/detank testing, the liquid oxygen ullage transducers (XDs) were noted as being erratic. Failure analysis indicated that flow conditions on the sensing port were creating resonance oscillations and erroneous readout of data. Management made a decision to change out the XDs with redesigned units. To accomplish this, the ET nose cone insulation had to be removed to provide access. Installation of the modified XDs and reinstallation of the nose cone insulation are in progress and scheduled to be completed concurrently with the other ET insulation repair.

Life Support System Test

Functional verification testing of the Hamilton Standard modified life support system to be carried on the STS-1 flight was completed following successful chamber runs on March 2 and 5, by the prime crew, Robert Crippen and John Young. The testing was necessary to verify the redesigned components and assure that the unit was acceptable for flight.

Safety Tip

ATTENTION: The Thiokol Safety Office advises personnel attending the launch not to continuously gaze at the flame from the solid rockets during the ascent phase of the launch, especially using field glasses or cameras with magnifying viewfinders. Severe eye damage could result.

External Tank Repair

The test repair of the MPTA (main propulsion test article) at NSTL was considered successful following tank/detank procedures and sampling the repaired areas for signs of debonding. Placement of stands and preliminary preparations are underway to repair the STS-1 ET in place at KSC. The schedule calls for these repairs to be completed on/about March 20. Two tank/detank tests will be conducted to assure the bond is acceptable for flight.

How to register as an engineer

There are three sections of the Texas Engineering Practice Act under which an engineer can register, reported Woodrow Mize, P.E. Mize was at Johnson Space Center Feb. 25 to speak at the Bldg. 2 Auditorium as part of an Engineers Week event sponsored by the Bayou Chapter of the Texas Society of Professional Engineers and the Clear Lake Council of Technical Societies.

The three sections are 12(a), 12(b), and Section 21. Section 12(a) says if you have a four year engineering degree approved by the Board and four years of experience which is acceptable to the Board, they can grant you registration.

Section 21 of the law deals with reciprocity. This section allows you to apply in Texas if you live in another State. There is a residency requirement and if the applicant is not a Texas resident as defined in the Board rules, they will not accept your application unless you currently have an active license in another state. There is no difference in documentation or experience when applying under this section other than that required under sections 12(a) and 12(b).

Mize defined acceptable experience as "that experience which requires you to make judgment decisions, the basis of those decisions to be on engineering principles."

Section 12(b) requires eight years acceptable experience and the taking and passing of an oral and written or two written examinations. The written examinations are the National Council of Engineering Examiners Fundamentals and Principles and Practice tests.

If you have a four year degree of any major (physics, math, liberal arts, etc.), including not approved engineering degrees, you can get two years experience credit for the degree. The applicant can also get one year experience credit for each year he or she completes for an approved four year engineering degree. The maximum number of years experience the applicant can get credit for is four.

If you would like more detailed information about registration and the Texas Engineering Practice Act, contact Robert L. Winkler, President-Elect of the Bayou Chapter, at 488-5660, ext. 421.